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# THE TRAINING OF WORKERS IN TRADES AND INDUSTRIES





# University of Texas Bulletin

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## The Training of Workers in Trades and Industries



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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of democracy. . . . It is the only dictator that freemen acknowledge and the only security that free-men desire.

Mirabeau B. Lamar

## THE TRAINING OF WORKERS IN TRADES AND INDUSTRIES

The University of Texas, with the desire to serve the people of the State in a still larger way, now offers instructor-training courses in trade and industrial education.

The need for training among workers will be determined through industrial surveys throughout the State. Whenever a need is shown, skilled workers will be trained to become instructors for classes, which will be organized in plant, mill, factory, school, and store.

In cooperation with the State Board of Vocational Education, classes in trade and industrial subjects will be organized in industrial centers of the State. The instructors for these classes will be trained by vocational teacher trainers from the University of Texas.

In the summer session of the University, courses in the study of the problems in vocational education will be offered. These will be of interest to managers, employers, foremen, workmen, school executives, and teachers.

This bulletin outlines in general the field of vocational education. If additional information is desired concerning any particular course, a detailed outline of that course will be furnished upon request.

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### TRADE AND INDUSTRIAL EDUCATION

S. M. RANSOPHER.....*Director*  
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## PURPOSE OF TRADE AND INDUSTRIAL EDUCATION

*A greater degree of skill among the workers in Texas industries* summarizes the aim of this work. By workers, we include persons employed in industry, from the manager of the concern to the office boy. To add to the skill of managers, mechanics, and apprentices, both men and women, who are employed in the industries of the State, is the aim of trade and industrial education.

Highly skilled workers are a great asset to the State. In the year 1910, each worker in Massachusetts added \$990 to the value of raw material over and above his earnings, which averaged \$758; each worker in Tennessee added \$464 to the value of the raw material, and received \$455 for his work. Massachusetts, with more highly skilled workers, better managers, and better equipment, was able to turn out a higher grade and therefore more valuable product, and at the same time pay workers a higher wage.

### DOES TRAINING PAY?

(Figures are from the 1910 Census)

#### Massachusetts

██████████ \$990—Value each worker added to the raw material.

██████████ \$758—Each worker's average yearly wage.

#### Tennessee

██████████ \$464—Value each worker added to the raw material.

██████████ \$455—Each worker's average yearly wage.



Smelter—El Paso

*To Managers and Employers:*

To secure and hold skilled workers is one of the most serious problems facing most employers.

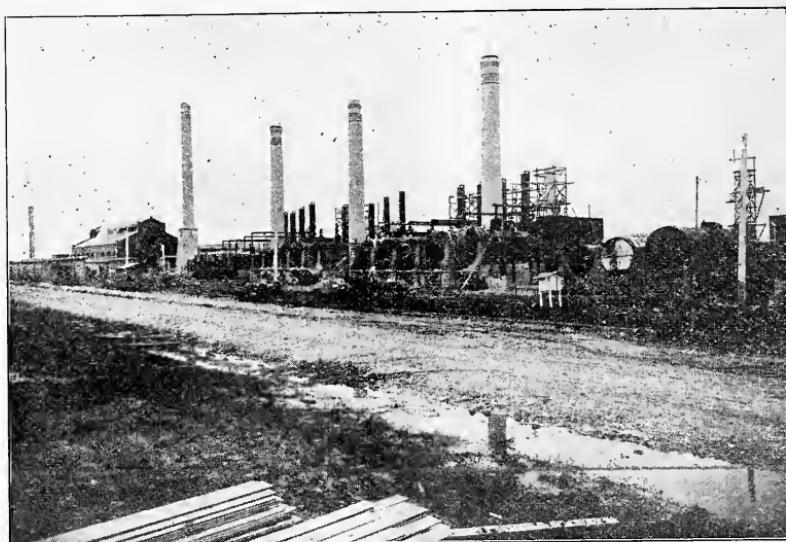
The Director of Trade and Industrial Education will help you train your semi-skilled workers. This can be done in your own factory with one of your most skilled workers acting as the instructor. Are some of your machines idle because of a shortage of skilled workers? Is your production below what it should be, because of "green" hands?

Submit your training problems to us; we shall be glad to help in their solution. The service is free.

*Foremen Training:* The demand for trained foremen, the non-commissioned officers of industry, was never greater than at the present time.

Realizing this demand, the Federal Board for Vocational Education, by working with one of the largest concerns in the country, has developed probably the most thorough foreman training course ever presented.

If you are interested in foreman-training, write the Director of Trade and Industrial Education.



Oil Refinery—Fort Worth

*To Workers:*

Are you among the most highly skilled workers in your trade, or are you a little hazy about some things which the best workman in your trade could explain? Are you prepared to fill a better position than you now hold?

Through the cooperation of the State Board for Vocational Education and the public school of any community, courses in trade and industrial education may be established. These courses will help you to become more skilled in your trade, thus preparing you for a better position. If you are willing to spend some of your spare time in a class instructed by a first-class workman, you can secure the training you need. Wherever a need is found, trade extension classes may be opened for men and women; for example, drawing for machinists and carpenters, blueprint-reading for machinists, special methods in machine operation for machinists, estimating for carpenters, starting and lighting for auto mechanics, power-machine operating for women garment workers, table service for waitresses—in short, classes in any subject which will make you more skilled in your trade.



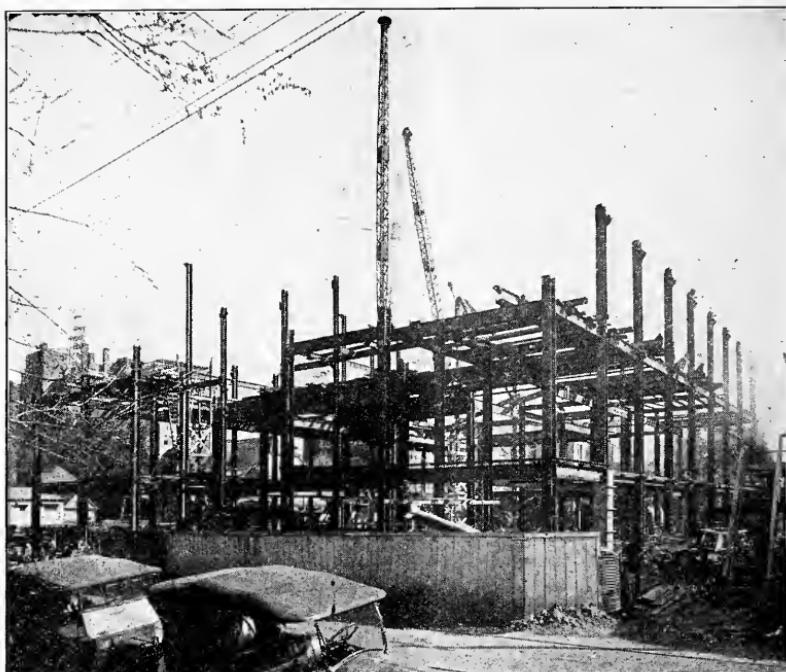
Flour Mill—Wichita Falls

*To Teachers:*

There is at present a great demand for teachers of shop and related subjects in industrial schools. Good salaries are paid, chances for promotion are excellent, and the field is just opening up.

Vocational teachers for shop subjects are taken from the trade. Men and women who have spent several years at their respective trades, and who thoroughly understand their work from the production viewpoint, will be enrolled in instructor training courses, which prepare for employment as instructors in trade and industrial education classes.

Teachers of related subjects—those who teach mathematics, drawing, and science—are taken in most cases from the schools. Manual training and home economics teachers who have spent or are willing to spend some time working in one or more trades to secure the necessary trade contact, may secure certificates, as related subjects teachers, by

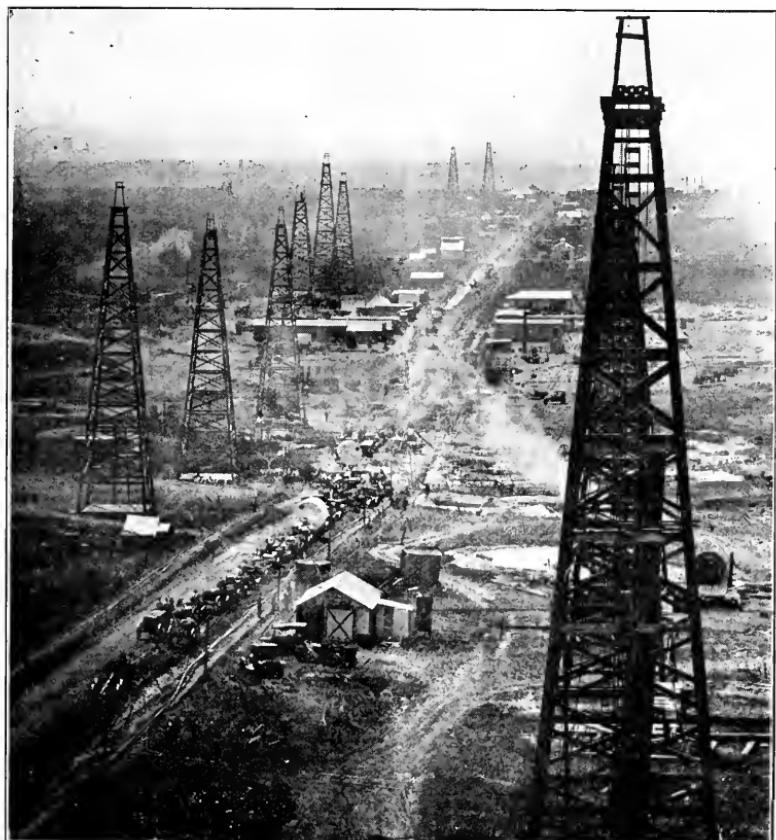


Building Activity—Dallas

studying trade and industrial education two summer sessions at the University of Texas.

General continuation teachers—those who teach arithmetic, English, writing, and other general education subjects in part-time schools—are usually taken from the public schools. They are trained to teach young people who are now employed, but have left school before finishing their common-school work. Since the courses for these classes will be for those who have entered industry, teachers of these subjects should be able to teach from an industrial viewpoint.

Teachers who are interested in vocational work should write the Director of Trade and Industrial Education.



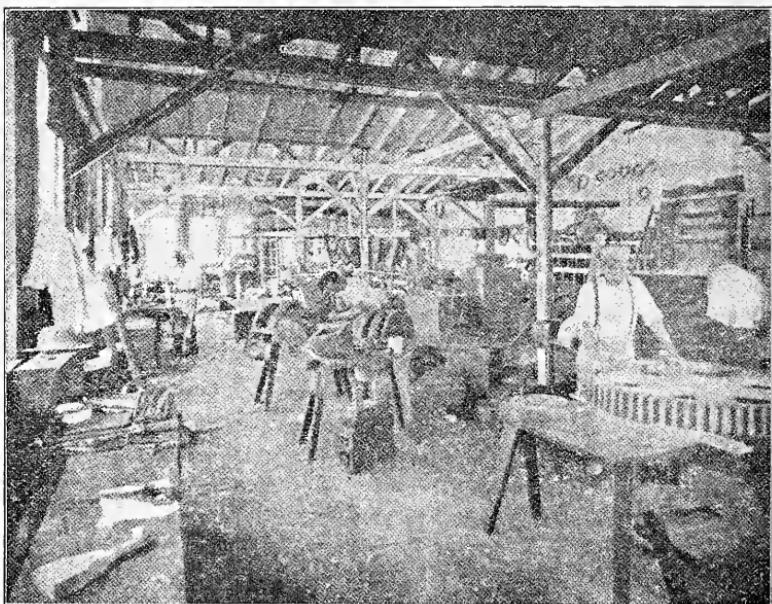
On the Highway—Famous Burkburnett Oil Fields

*To School Executives:*

The vocational education movement is the big problem in educational administration at the present time. The war has shown the American public the value of teaching young people a trade.

In order to keep in the front rank of progress, you must study the needs and possibilities of your community from a vocational viewpoint.

Education should not be one-sided. It should prepare the worker not only to live, but to make a living. Very few



Pattern Shop—San Antonio

men with good trades are hampered in making a living nowadays.

Vocational education creates a demand for and broadens the field of general education.

The Federal and State Governments will help your local board finance vocational work. The Director of Trade and Industrial Education will gladly give information regarding vocational schools of every type, courses of study, equipment, organization, and assist you in finding qualified teachers.

Remember that classes along the line of general education can be opened for the young worker who has left school before completing common school or high school. These classes are usually organized in general continuation schools.



The Dam at Austin

### TYPES OF TRADE AND INDUSTRIAL SCHOOLS

#### ALL-DAY UNIT TRADE SCHOOLS

*Aim.*—To teach the boy or girl the fundamentals of a trade.

*Who are the students?*—Boys and girls who are not yet employed, but who wish to learn a trade.

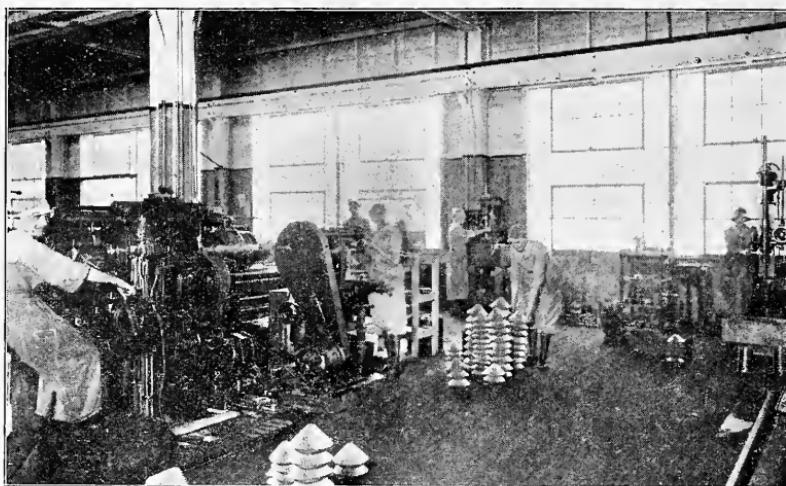
*When is the school open?*—All day, at least five days a week. Courses vary from one to four years.

*What subjects are taught?*

#### *Shop Subjects*

The Building Trades.	Millinery.
Auto Mechanics.	Garment Machine Operating.
Blacksmithing.	Straw Hat Machine Operating.
Sheet Metal Work.	Gas and Electric Welding.
Machine Shop Work.	Printing.
Patternmaking.	Painting and Decorating.
Electrical Work.	Bricklaying.
Dressmaking.	
Flower and Feather Making.	

Many other trades depending on the local demand. One-half of each day is spent in the shop.



Tool Factory—Houston

*Related Subjects*

Trade Drawing.      Trade Mathematics.      Trade Science.

*Non-Vocational Subjects*

English.      Industrial Geography.      Writing.  
Industrial History.      Civics.

One-half of each day is spent on related and non-vocational subjects.

*Who are the teachers?*

*Shop teachers*—drawn from the trade and given instruction in methods of teaching.

*Related subjects teachers*—usually drawn from the regular day schools, and experienced in several different trades. It is necessary that they know how to teach their subject from a trade viewpoint.

*How is the school financed?*—State and Federal funds may be used for reimbursement up to one-half the cost of salaries of teachers in approved schools, while the local community pays the other half.



Shipping—Galveston

#### PART-TIME TRADE PREPARATORY SCHOOLS

*Aim.*—To increase skill and intelligence in a vocation other than that in which the student is employed.

*Who are the students?*—Young men and women who are employed, but who wish to learn a trade by spending a part of their time in trade classes. For example, a Western Union messenger boy wants to become a telegrapher, or a cash girl in a department store wants to become a saleswoman. Part-time classes should be available for them.

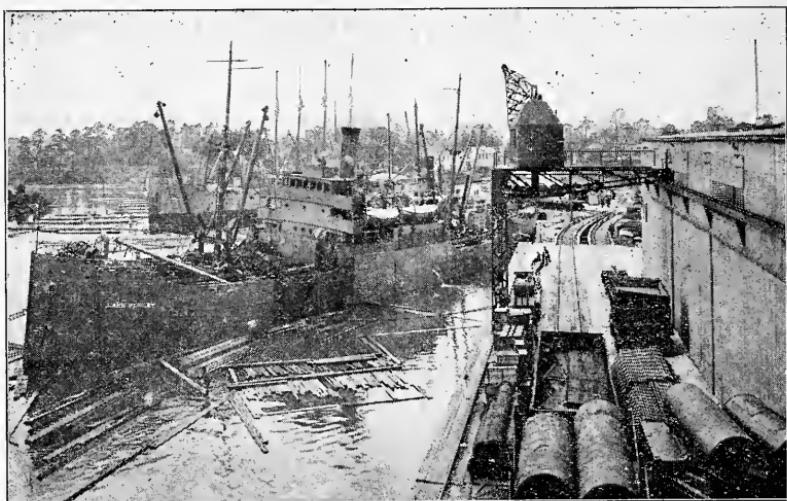
*When is the school open?*—Part-time schools are held during working hours, on the employer's time, and at least 144 hours' instruction must be given each year. They may also be held during the slack season.

*Where are the classes held?*—Usually in the plant, shop, or factory where the student works, but always in some easily accessible place.

*What subjects are taught?*—Trades for which there is a demand for training. A few examples are given: Morse operating for messenger boys; salesmanship for cash girls.

*Who are the teachers?*—Mechanics from the trades who have had training in methods of teaching their trade.

*How is the school financed?*—The State and Federal Governments pay one-half the expense of teaching, while the concern or local community pays the other half.



Loading Timber—Beaumont

#### EVENING TRADE EXTENSION SCHOOLS

*Aim.*—To aid workers to become more skilled in the trades.

*Who are the students?*—Men and women who are working at their trades, but who wish to prepare for better positions.

*When is the school open?*—Any time outside regular working hours, mornings, evenings, afternoons, and “off” periods.

*What subjects are taught?*—Any subject related to the regular occupation of the worker. A few examples are given:

Blueprint-reading for Machinists, Carpenters, Electricians, Structural Steel Workers, Plumbers, Bricklayers, and Concrete Form-Makers.

Estimating for Carpenters, Inside Wiremen, and Plumbers.

Chemistry of Oils for Refiners.

Distillation of Oils for Still Men.

National Electrical Code for Wiremen.

Starting and Lighting for Auto Mechanics.  
Chassis Repair for Auto Mechanics.  
Science of Milling for Millers.  
Sanitation for Bakers.  
Universal Milling Machine Operation for Machinists.  
Power Machine Operation for Garment Workers.  
Power Machine Operation for Hat Makers.  
Art Needle Work for Milliners and Dressmakers.  
Table Service for Waitresses.  
Salesmanship for Department Store Workers.  
Composition for Printers.  
Projection Drawing for Sheet Metal Workers.  
Special Courses for Cooks.  
Tool Sharpening for Blacksmiths.  
Pumps and Condensers for Steam Engineers.  
Value of Fuels for Steam Engineers.  
Reenforcing Concrete for Concrete Workers.

*Who are the teachers?*—Men and women who are working at their trades and are considered among the best workmen in the industry. They are given instruction in how to teach their subject before the class is opened.

*How is the school financed?*—State and Federal funds may be used for reimbursement up to one-half the cost of salaries of teachers in approved schools, while the local community pays the other half.

#### GENERAL CONTINUATION SCHOOLS

*Aim.*—To continue the general education of young workers who have left school at an early age to enter industry.

*Who are the students?*—Boys and girls, 14 years old or older, employed in the factory, mill, plant, or store, who wish to prepare for better service.

*What subjects are taught?*—Arithmetic, English, writing, and civics, and other subjects relating to the mill, factory, store, or plant.

*Where is the work given?*—Usually in the mill, factory, store, or plant, but may be given in buildings easily accessible during working hours.

*Who are the teachers?*—Experienced teachers from the public schools who are willing to take vocational training in order to get the trade viewpoint.

*How is the school financed?*—One-half the salaries of the teachers is paid by the State and Federal Governments and one-half by the local community. In rural communities and small towns, State and Federal aid may be granted to the extent of three-fourths, leaving only one-fourth to be paid by the local community.

#### METHOD OF SECURING AID

1. Determine what kind of vocational training is needed in the local community.
2. Make application to the State Board for Vocational Education giving the following information:
  - (a) The kind of classes to be organized—part time, evening, or day trade.
  - (b) State the names and qualifications of teachers who will carry on the work. Teachers may secure certificates as shop or related subjects teachers from the State Board for Vocational Education after taking training in industrial education at the University of Texas.
  - (c) State where the work will be given.
  - (d) State that the work is under public supervision and control.
  - (e) The funds needed for carrying on the work.



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